

--60. (New) A method for identifying polypeptides having a desired activity using high throughput screening of genomic DNA comprising:

a) providing an expression library containing a plurality of clones, wherein the DNA for generating the library is obtained from a mixed population of organisms, wherein the organisms are extremophiles;

b) enclosing a fluorescent substrate and at least one clone from the library in a gel microdroplet, wherein the substrate is fluorescent in the presence of the polypeptide having the desired activity;

c) screening the microdroplet with a fluorescent analyzer that detects fluorescence; and

d) identifying clones detected as positive for fluorescence, wherein fluorescence is indicative of DNA that encodes the polypeptide having the desired activity.

61. (New) The method of Claim 60, wherein the extremophiles are thermophiles.

62. (New) The method of Claim 60, wherein the extremophiles are selected from the group consisting of hyperthermophiles, psychrophiles, halophiles, psychrotrophs, alkalophiles, and acidophiles.

C1
conclude

63. (New) The method of claim 60, wherein the DNA for generating the library is
obtained using a culture-independent system.--
